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ALCATEL LUCENT
INTELLECTUAL PROPERTY & STANDARDS
3400 W. PLANO PARKWAY, MS LEGL2
PLANO, TX 75075

EXAMINER	
MADAMBA, GLENFORD J	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/729,124	SRIDHAR ET AL.	
	Examiner	Art Unit	
	Glenford Madamba	2151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Remarks

1. This action is in response to remarks filed by Applicant's representative on November 8, 2007.

2. Applicant's arguments and remarks filed November 8, 2007 have been considered and deemed persuasive to overcome the previous rejection, but are now considered moot in light of the new grounds of rejection provided below for the current set of pending claims.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2-4, 5, 6-7, and 10-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodialam, U.S. Patent US 6,584,071 in view of Non-Patent Literature

PPVN WG Internet Draft *Generic VPLS Solution based on LPE Framework* (hereinafter Radoaca) and in further view of Tsillas, U.S. Patent Publication US 2005/0138008 A1.

As per Claims 1 and 21, Kodialam in view of Radoaca and in further view of Tsillas discloses a processing device (600) programmed to determine homing paths for a plurality of virtual private local area network services in an Ethernet network comprising a plurality of PE nodes [Abstract], programmed to perform the steps of:

computing a plurality of sets of different homing configurations [Figs. 1 & 7];

wherein each homing configuration in each set of different homing configurations is computed by a respective iteration of steps [Figs. 4 & 5];

wherein each iteration corresponds to a respective virtual private local area network service in the plurality of virtual private local area network services and for a respective selected layer two provider edge node in the Ethernet network; and

wherein each iteration comprises the steps of:

selecting an ingress PE node and an egress PE node (e.g., {Sn, Dn} Ingress-Egress Point Pairs) [Fig. 7] [col 12, L55-60];

determining bandwidth into the ingress PE node (e.g., demand bd_212) [Fig. 2] [col 2, L56-58];

determining bandwidth out of the egress PE node (e.g., demand bd_212) [Fig. 2] [col 2, L56-58];

specifying a first path for communication from the ingress PE node to the egress PE node (e.g., {S1, D1}) [Fig. 7] and a second path for communication from the egress PE node to the ingress PE node (e.g., {S1, D1}) [Fig. 7], wherein each path of the first and second paths comprises at least one P node;

computing a cost function for each set of different homing configurations in the plurality of sets of different homing configurations (link cost) [col 6, L28-37]; and

selecting a set of homing configurations from the plurality of sets of different homing configurations in response to a respective computed cost function (calculated / selected NTP path / route / link) [col 3, L50-65] [col 5, L32-38] [col 6, L28-37].

While Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 1, the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area

network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

Further, while the combination of Kodialam and Radoaca discloses substantial features of the invention of claim 1, the additionally recited feature of the computing the homing configuration wherein each iteration corresponds to a respective virtual private local area network service in the plurality of virtual private local area network services and for a respective selected layer two provider edge node in the Ethernet network is expressly disclosed by Tsillas in a related endeavor.

Tsillas discloses as his invention an 'adaptive' spanning tree algorithm to work more optimally in particular network topologies. In one aspect of the invention, the spanning tree protocol is run over and first and second network connected by a third

network, wherein the spanning tree network is disabled in the third network. The third network may be, for example, a core network (e.g. MPLS Core) [0024] through which a first and second Layer 2 Networks are bridged [0027-0030]. In particular, Tsillas discloses the additionally recited feature of the step configuration wherein each iteration corresponds to a respective virtual private local area network service in the plurality of virtual private local area network services and for a respective selected layer two provider edge node in the Ethernet network [Abstract] (i.e, VPLS in Metro Ethernet bridged Networks {MEN}, employing the use of LSP techniques) [0023-0026] [0033].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Kodialam and Radoaca with the above said additionally recited, as disclosed by Tsillas, for the motivation of providing a method and system for executing a revised spanning tree algorithm that performs more optimally in particular network topologies, such as in the 'bridging' of Layer 2 Networks by a core network (e.g., MPLS Core Network) [Abstract].

Claim 21 recites the same limitations as claim 1, is distinguished only by its statutory category, and thus rejected on the same basis.

As per Claim 2, Kodialam in view of Radoaca discloses the processing device of claim 1:

wherein each homing configuration comprises primary homing paths and secondary homing paths (e.g., {S1, D1}) {S2, D2} {S3, D3} {S4, D4})[Fig. 7];

wherein the primary homing paths comprise the first and second paths (e.g., {S1, D1}) {S2, D2})[Fig. 7];

and wherein the processing device is further programmed to determine the secondary homing paths for each homing configuration (e.g., {S3, D3} {S4, D4})[Fig. 7], wherein each iteration further comprises the steps of:

selecting a secondary ingress PE node and a secondary egress PE node (e.g., {Sn, Dn} Ingress-Egress Point Pairs) [Fig. 7] [col 12, L55-60];

determining bandwidth into the secondary ingress PE node (e.g., demand bd_212) [Fig. 2] [col 2, L56-58];

determining bandwidth out of the secondary egress PE node (e.g., demand bd_212) [Fig. 2] [col 2, L56-58];

specifying a first path for communication from the ingress PE node to the egress PE node (e.g., {S1, D1}) [Fig. 7] and a second path for communication from the egress PE node to the ingress PE node (e.g., {S1, D1}) [Fig. 7], wherein each path of the first and second paths comprises at least one P node;

specifying a third path for communication from the secondary ingress PE node to the secondary egress PE node (e.g., {S3, D3} {S4, D4})[Fig. 7] and a fourth path for communication from the secondary egress PE node to the secondary ingress PE node (e.g., {S3, D3} {S4, D4})[Fig. 7], wherein each path of the third and fourth paths comprises at least one P node.

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 1, he does not expressly disclose the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a third and fourth path wherein each path of the third and fourth paths comprises at least one "P" node. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a third and fourth path wherein each path of the third and fourth paths comprises at least one "P" node [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited features of an

ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a third and fourth path wherein each path of the third and fourth paths comprises at least one "P" node, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 3, Kodialam discloses the processing device of claim 2 wherein each iteration further comprises the steps of:

determining whether either the first path or the second path violates a constraint set comprising at least one constraint (e.g. link capacity 503) [Fig. 5]; and

determining whether either the third path or the forth path violates the constraint set (e.g. link capacity 503) [Fig. 5].

As per Claim 4, Kodialam discloses the processing device of claim 2 wherein the constraint set comprises a constraint relating to the bandwidth along the first and second paths (e.g. demand bandwidth) [Abstract] [Figs. 3 & 7].

As per Claim 5, Kodialam discloses the processing device of claim 2 wherein the constraint set comprises a constraint selected from a set consisting of:

a first constraint wherein a layer two provider edge node may multi-home only to PE nodes within a predetermined geographical proximity of the layer two provide edge node [Radoaca: Figure 1];

a second constraint wherein a logical VPLS entity may connect to only one PE node [Radoaca: Figure 1];

a third constraint, wherein traffic between a logical VPLS entity and a PE node is less than or equal to available bandwidth (effective / residual bandwidth) on a link between the logical VPLS entity and the PE node [Fig. 7] [col 2, L20-40] (link bandwidth capacity) [col 5, L39 – col 6, L58];

a fourth constraint, wherein bandwidth is equalized in that a sum of bandwidth entering a PE node plus a sum of bandwidth (effective / residual bandwidth) entering that PE node from any P nodes equals a sum of bandwidth leaving that PE node plus a sum of bandwidth leaving that PE node towards any P nodes [Fig. 7] [col 2, L20-40] (link bandwidth capacity) [col 5, L39 – col 6, L58];

a fifth constraint, wherein at a P node, a sum of bandwidth (effective / residual bandwidth) entering that P node must be less than or equal to the sum of the bandwidth capabilities on the output link between that P node and an adjacent P node [Fig. 7] [col 2, L20-40] (link bandwidth capacity) [col 5, L39 – col 6, L58];

a sixth constraint, wherein a sum of bandwidth entering all PE nodes must equal a sum of bandwidth leaving all PE nodes [Fig. 7] [col 2, L20-40] (link bandwidth capacity) [col 5, L39 – col 6, L58];

a seventh constraint, wherein bandwidth into a PE node may not exceed any limit provided by the processing capability of that PE node; and

an eighth constraint, wherein end to end delay limits are provided for one or more paths (e.g., delay) [col 6, L35].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claims 1 and 2, he does not expressly disclose the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited features of an ingress or egress "PE" node, iteration corresponding to a respective virtual private local area network service, and the iteration step of specifying a first and second path wherein each path of the first and second paths comprises at least one "P" node, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 6, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the plurality of PE nodes comprise fully-meshed PE nodes [Fig. 7].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2 and fully-meshed nodes, he does not expressly disclose the specified features of an ingress or egress "PE" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of ingress or egress "PE" nodes forming the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited features of an ingress or egress "PE" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 7, Kodialam in view of Radoaca discloses the processing device of claim 2 and further programmed to perform the steps of, prior to the computing step:

inputting a set of P nodes in the Ethernet network; and

inputting bandwidth capability between each P node, in the set of P nodes, and an adjacent P node in the set of P nodes (e.g., bandwidth / residual capacity Rij of links) [Fig. 4].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of "P" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks

[Abstract, pg. 1]. In particular, Radoaca discloses the specified features of "P" nodes forming part of the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of "P" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 9, Kodialam in view of Radoaca discloses the processing device of claim 8 and further programmed to perform the step of, prior to the computing step, inputting bandwidth requirements information as between each customer edge node connected to the Ethernet network and any other customer edge node connected to the Ethernet network.

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 1, and fully-meshed nodes, he does not expressly disclose the specified feature of customer edge node connected to the Ethernet network, as specified by the claim. The feature is expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect

customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of customer edge node connected to the Ethernet network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of customer edge node connected to the Ethernet network, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 10, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the step of specifying a third path and a fourth path is in response to a number of P node hops (min-hop algorithm) [col 3, L20-21] in the third path and the fourth path (e.g., {S3, D3} {S4, D4}) [Fig. 7].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of "P" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks

[Abstract; pg. 1]. In particular, Radoaca discloses the specified features of "P" nodes forming part of the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of "P" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 11, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the step of specifying a third path and a fourth path is in response to distributing bandwidth load along a number of P node hops (min-hop algorithm) [col 3, L20-21] in the third path and the fourth path (e.g., {S3, D3} {S4, D4}) [Fig. 7] such that bandwidth load between each successive hop between successive P nodes is within a tolerance of a bandwidth load between each other successive hop between successive P nodes in a same path (e.g., computing 'maxflow' values for pseudo-network Gb 501, 502, 503) [Fig. 5].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of "P" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of "P" nodes forming part of the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of "P" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 12, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the step of specifying a first path and a second path is in response to a number of P node hops (min-hop algorithm) [col 3, L20-21] in the first path and the second path (e.g., {S1, D1} {S2, D2}) [Fig. 7].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of "P" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of "P" nodes forming part of the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of "P" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 13, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the step of specifying a first path and a second path is in response to distributing bandwidth load along a number of P node hops (min-hop algorithm) [col 3, L20-21] in the first path and the second path such that bandwidth load between each successive hop between successive P nodes is within a tolerance of a bandwidth load between each other successive hop between successive P nodes in a same path (effective bandwidth for link Lij) [col 5, L39-55] (e.g., {S1, D1} {S2, D2}) [Fig. 7].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified

feature of "P" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of "P" nodes forming part of the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of "P" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 14 and 16, Kodialam in view of Radoaca discloses the processing device of claim 2 wherein the step of computing a cost function for each set of different homing configurations in the plurality of sets of different homing configurations comprises computing a total number of virtual private local area network service connections included in each set of different homing configurations ("link cost") [col 6, L31-36].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of a number of virtual private local area networks service connections. The feature is expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified feature of a number of virtual private local area networks service connections (VPLS) [Abstract] [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of a number of virtual private local area networks service connections, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claims 15 and 17, Kodialam in view of Radoaca discloses the processing device of claim 14 wherein the step of selecting a set of homing configurations comprises selecting a set of homing configurations having a maximum total number of virtual

private local area network service connections included in the selected set of homing configurations.

Further, while Kodialam discloses substantial features of the invention, such as the homing configurations and ingress-egress nodes of claim 2, he does not expressly disclose the specified feature of a number of virtual private local area networks service connections. The feature is expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified feature of a number of virtual private local area networks service connections (VPLS) [Abstract] [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of a number of virtual private local area networks service connections, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

As per Claim 18, Kodialam in view of Radoaca and in further view of Tsillas discloses the processing device of claim 1 wherein the network comprises a Metro Ethernet network.

While the combination of Kodialam and Radoaca discloses substantial features of the invention of claim 1, the additionally recited feature of the the processing device wherein the network comprises a Metro Ethernet network is expressly disclosed by Tsillas in a related endeavor.

Tsillas discloses as his invention an 'adaptive' spanning tree algorithm to work more optimally in particular network topologies. In one aspect of the invention, the spanning tree protocol is run over and first and second network connected by a third network, wherein the spanning tree network is disabled in the third network. The third network may be, for example, a core network (e.g. MPLS Core) [0024] through which a first and second Layer 2 Networks are bridged [0027-0030]. In particular, Tsillas discloses the additionally recited feature of the step configuration wherein each iteration corresponds to a respective virtual private local area network service in the plurality of virtual private local area network services and for a respective selected layer two provider edge node in the Ethernet network [Abstract] (i.e, VPLS in Metro Ethernet bridged Networks {MEN}, employing the use of LSP techniques) [0023-0026] [0033].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Kodialam and Radoaca with the above said additionally recited, as disclosed by Tsillas, for the motivation of providing a method and

system for executing a revised spanning tree algorithm that performs more optimally in particular network topologies, such as in the 'bridging' of Layer 2 Networks by a core network (e.g., MPLS Core Network) [Abstract].

As per Claim 19, Kodialam in view of Radoaca discloses the processing device of claim 1 wherein one node in the plurality of nodes comprises the processing device (600) [Figs 6 & 7].

As per Claim 20, Kodialam in view of Radoaca discloses the processing device of claim 1 and further programmed to perform the step of communicating information to PE nodes in the Ethernet network to configure nodes receiving the information, wherein the information is in response to the selected set of homing configurations [Figs. 4 & 5].

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 1 and homing configurations, he does not expressly disclose the specified features of an ingress or egress "PE" nodes, as specified by the claims. The features are expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks

[Abstract, pg. 1]. In particular, Radoaca discloses the specified features of ingress or egress "PE" nodes forming the network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited features of an ingress or egress "PE" nodes, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodialam, U.S. Patent US 6,584,071 in view of Non-Patent Literature PPVN WG Internet Draft *Generic VPLS Solution based on LPE Framework* (hereinafter Radoaca) and in further view of Non-Patent Literature Internet Draft *IETF Document L2VPN Requirements* (hereinafter Augustyn).

As per Claim 8, Kodialam in view Radoaca and in further view of Augustyn discloses the processing device of claim 7 and further programmed to perform the steps of, prior to the computing step:

inputting a set of layer two provider edge nodes in the Ethernet network; and

inputting bandwidth capability between each layer two provide edge node, in the set of layer two provider edge nodes, and each PE node in the plurality of PE nodes.

Further, while the combination of Kodialam and Radoaca disclose substantial features of the invention, such as the ingress-egress nodes of claim 1 and fully-meshed nodes, neither expressly discloses the additional features of layer two provider edge nodes and ingress/egress "PE" nodes, as specified by the claims. The features are expressly disclosed by Augustyn in a related endeavor.

Augustyn discloses requirements for Layer 2 Provider Provisioned Virtual Private Networks (PPVPNs) [Abstract, pg. 1]. In particular, Augustyn discloses the specified features of of layer two provider edge nodes and ingress/egress "PE" nodes [Figure 1, pg. 5] [Section 3.4 "VPLS" pgs. 5-6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to modify the combination of Kodialam' and Radoaca with the additional features of an ingress or egress "PE" nodes, as disclosed by Augustyn, for the motivation of providing requirements that a Service Provider may use for the provisioning of a Layer 2 VPN Service [Par. 1, pg. 4].

As per Claim 9, Kodialam in view of Radoaca discloses the processing device of claim 8 and further programmed to perform the step of, prior to the computing step, inputting bandwidth requirements information as between each customer edge node connected

to the Ethernet network and any other customer edge node connected to the Ethernet network.

Further, while Kodialam discloses substantial features of the invention, such as the ingress-egress nodes of claim 1, and fully-meshed nodes, he does not expressly disclose the specified feature of customer edge node connected to the Ethernet network, as specified by the claim. The feature is expressly disclosed by Radoaca in a related endeavor.

Radoaca discloses *virtual private LAN service (VPLS)* solution over MPLS, called Generic VPLS/LPE (GVPLS) that emulates a partial bridging functionality to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1]. In particular, Radoaca discloses the specified features of customer edge node connected to the Ethernet network [Figure 1, pg. 6].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature of customer edge node connected to the Ethernet network, as disclosed by Radoaca, for the motivation of providing 'bridging functionality' to connect customer LANs/VLANs across the "*Metro*" and WAN Service Provider Networks [Abstract, pg. 1].

4. Claim 18 is additionally rejected under 35 U.S.C. 103(a) as being unpatentable over Kodialam, U.S. Patent US 6,584,071 in view of Applicants Admitted Prior Art (AAPA).

As per Claim 18, Kodialam in view of AAPA discloses the processing device of claim 1 wherein the network comprises a Metro Ethernet network.

While Kodialam discloses substantial features of the invention, such as the homing configurations and ingress-egress nodes of claim 1, he does not expressly disclose the feature wherein the network comprises a Metro Ethernet network. The feature is expressly disclosed by Applicant in the background for his invention as a well-known feature in the art [0004].

It would thus be obvious to one of ordinary skill in the art at the time of the invention to combine and/or modify Kodialam's invention with the recited feature wherein the network comprises a Metro Ethernet network for the motivation of determining paths for packet traffic in multi-homed VPLS belonging to a Metro Ethernet Network [Abstract, pg. 1].

Conclusion

1. The Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified

citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenford Madamba whose telephone number is 571-272-7989. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Wallace Martin can be reached on 571-272-3440. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Glenford Madamba
Examiner
Art Unit 2151